Wheat, Chaff and Conflicting Definitions in Market Transformation

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ABSTRACT

The term "Market Transformation" developed from the concept that programs that concentrated on changing the way energy efficiency was received in markets would lead to larger, longer lasting, better accepted, or more cost-efficient efficiency improvements. Programs could alter the relationships between market actors – consumers, retailers, distributors, producers, suppliers, etc. – rather than just addressing consumer demand, and thus might have longer-lasting effects. Market transformation was seen as one way, but not necessarily as the only way to obtain energy efficiency improvements. Many policymakers agreed, and have directed energy efficiency funding toward market transformation. In order to make the concept useful as a means of deciding between competing projects – to operationalize it as a prioritization tool and to begin to develop programs from a basis in theory, this paper lists proposed definitions, describes multiple perspectives, and proposes operational criteria for market transformation. The descriptions, definitions and criteria are intended to contribute to greater mutual understanding, and thus to the accomplishment of the overall objectives of market transformation.

Introduction

Most practical theories begin with empirical experience and insight, and only slowly evolve to the status of "theory." The "theory" of market transformation, similarly, did not jump full-blown from the ether, but from an iterative development – with abstraction and hypotheses developed from initial insights and experience, with successive refinement and change of the hypotheses based on further evaluation. It is a process that is still going on. The focus of this paper is on exploring current perspectives for the design of market transformation, with the hope that the analysis will promote greater consensus. We will examine some criteria, which appear to follow from the examination of theory and practice, for prioritizing market transformation program designs and later evaluating those programs.

After a brief discussion of the background to market transformation, we will review the current definitions, describe varying perspectives on MT, and suggest a set of criteria for operationalizing and ranking MT initiatives.

Background

Regardless of how tempting it may be to ascribe the development of market transformation to the restructuring of the utility industry, this is a specious description of history. Market transformation (MT) began (in the U.S., at least), was tested, and could continue to grow and thrive in a regulated utility environment. In fact, the argument has often been about whether MT could succeed in a competitive utility world (EPRI: 1994; Gordon and Eckman, 1995), rather than that it was necessary because of the re-structuring going on. Indeed,

some MT efforts were initiated without any involvement of utilities, e.g. Energy Star computers and the DOE Partnerships with Industry program..

The first formal presentation of MT as a theory probably was at the 1992 ACEEE Summer Study (Eckman, Benner and Gordon, 1992). This work was itself a result of a decade of field experience with programs and evaluations.

The evidence that market actors, such as utilities or governments, working together with others in the market, could produce sustained changes in the marketplace was found all over North America and in Sweden beginning in the 1980's. In ordering from the simplest to the most complex interventions, we illustrate the early experience gained with the following examples:

The US Environmental Protection Agency staff learned by 1991 that technologies developed to increase the time a laptop computer could run on a single battery charge could also be used in desktop models to save energy, but were not being developed commercially. EPA wrote a technical specification for what became the highly successful EnergyStar® computer program.

The Bonneville Power Administration discovered that its generous, four-year incentives program to change-out inefficient street lighting had captured so much of the *Northwest* market by 1986 that distributors no longer stocked inefficient fixtures (Peters and Bronfman: 1986).

The long-term incentive programs for efficient gas furnaces in *Wisconsin,* beginning in 1982 produced long term market effects, even after the incentives disappeared (Prahl and Pigg: 1997).

The *nationwide* Super Efficient Refrigerator Program (SERP) used a $30 million prize to get manufacturers to design and build refrigerators that were 50% more efficient than the federal standards in the late 1980's, while also eliminating CFCs several years ahead of international agreements. This "technology procurement" program was arguably the basis for the 1997 DOE refrigerator standard (to take effect in 2001) (Nadel and Geller: 1995; Tatsutani: 1995).

Beginning in 1987, the *Swedish* NUTEK procurement program has introduced over 20 products that stretched the limits of efficiency into the market. Some of these have remained as viable market alternatives (Suvilehto and Ofverholm, 1998).

Beginning in about 1988, BC Hydro moved the motors market in an entire province of *Canada* through aggressive incentives and marketing, with the use of standards to lock in their gains (Flannigan and Fleming: 1993).

The 1983 Plan of the *Northwest* Power Planning Council set out to establish a market and political acceptance of residential building codes 40% more efficient than the existing codes, and then obtain code adoption to lock in the gains. This was accomplished for residential and non-residential construction in both Oregon and Washington by 1995 (Nadel and Geller: 1995).

Thus, market transformation programs, based on an explicit recognition that some types of programs were doing something different, predated developed theory by several years. The programmatic approaches

included: sustained, often large, incentives to gain market share; bulk procurements to bring new generations of technologies to the market or to increase competition and reduce manufacturers' risks; marketing; and codes and standards. While not the only conclusions that we take from these efforts, the most important insights that came from this period may be: (a) that lasting changes in markets may take a sustained effort; and (b) programs in complex markets may work best when multiple interventions are coordinated to meet needs in multiple places in the market[1].

The anecdotal experiences cited above don't answer all questions. Among the unanswered questions are whether large incentives are necessary to impact the market, whether incentives may mitigate against a self-sustaining market, whether energy efficiency practices and energy systems might be as amenable to market intervention as specific technologies have been, and what target markets, such as low-income weatherization, may never be amenable to MT approaches? In addition, the synergism of multiple actors supporting a similar goal leaves open the problem in attribution of the result, which lingers today. Who gets the credit?

Theoretical development began in earnest after the ACEEE plenary presentation entitled: "It's 2002: Do You Know Where Your Demand Side Management Programs and Policies Are?" (Eckman et al., 1992). Planners, analysts, and evaluators began to address the need for a structured approach and some definitional rigor (Schlegel et al., 1992; Kitchen, 1993; Schlegel, 1994; EPRI, 1994; Goldstein, 1994; Gordon and Eckman, 1995; Nadel and Geller, 1995; SRC; 1996; Eto et al., 1996). These authors presented to the National Association of Regulatory Utility Commissioners (NARUC), the Chicago Evaluation Conference, the Association of Energy Service Professionals, the California PUC, and the ACEEE Summer Study. Definitional issues remained, as will be discussed below, but the concept began to intrigue policymakers and utilities. This has lead to political support for the concept (often inconsistently defined) as expressed in the decisions of the California PUC (CPUC, 1997), the Massachusetts regulators (MDPU, 1996), and the Governors' Regional Review in the Pacific Northwest (Northwest Power Planning Council, 1997). Formal organizations have been formed and become active in support of MT initiatives, including the Consortium for Energy Efficiency (CEE), the Northeast Energy Efficiency Partnership (NEEP), the Northwest Energy Efficiency Alliance (NEEA), and the Compressed Air Collaborative.

What Is the Problem?

With MT planning and activity beginning to pick up all over the country, there is potential for confusion about goals and methods that center on the definitions of MT and its various elements. One source of confusion is that the term "Market Transformation" has been used in (at least) two different ways: 1) to identify a policy goal, and 2) to describe a strategic approach to intervening in the market, which is only one among many ways of getting to the policy goal. This strategic approach involves changing characteristics of a market in order to encourage energy efficiency. These differences can be seen in both existing definitions and in our descriptions of the issues below. This paper focuses almost exclusively on the latter definition because it is the only one for which there is empirical experience as well as theory. The potential for confusion among practitioners and policymakers is not just of theoretical concern. If MT is defined in an overly restrictive way, potentially successful programs may not be funded. Conversely, if the definition is too broad, funding that could have been highly leveraged will be spent on ineffective MT "wannabes." The main focus of this paper is to provide

1. Bonneville tried to build an infrastructure in the Northwest to perform commercial building audits by paying for 2,000 audits in two years. The number of active firms and auditors grew to meet the demand, but once the subsidies for the audits went away, so did the capability/infrastructure (Keane: 1988).

guidelines for the strategic definition of MT, while describing the tensions in the background policy objectives. We hope to provide criteria against which a market transformation program can be evaluated, prospectively and retrospectively. Good definitions of strategic market transformation are those that allow policymakers to prioritize their funding and staffing decisions effectively.

Definitions

Many definitions of market transformation can be found in the recent literature, along with some that have developed informally in policy discussions. Most of them represent a proactive approach, although many see the proactive role as temporary. (Although the actual definition of market transformation is important, it is also important to define several other terms that surround it).[2]

Among those found in the literature are the following[3]:

Prahl (EPRI 1994): "Market transformation occurs when a DSM program induces some group of market actors to change its behavior in a manner that leads to lasting increases in the diffusion of energy efficiency measures and practices." [p. 3-3]

Nadel and Geller (1994): "...process whereby energy efficient innovations are introduced into the marketplace and over time penetrate a large portion of the eligible market...(...transformed markets do not require incentives)."

Goldstein (1994); "...programs which [either] encourage widespread adoption of advanced energy efficiency technologies that were either not available... prior to the program [or characterized by]

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[2] While the definition of market transformation is central to the discussion, there are other definitions needed to operationalize the concept:

Markets: a market is a system for voluntary exchanges of certain goods and services, between individuals or groups according to rules. (Feldman, 1994). Whether this seems too academic or not, it is clear that markets are not SIC codes, or utility customers sharing a rate class, or narrowly defined sets of end-use consumers. Markets involve more than consumers.

Market Effects: "A change in the structure of a market or the behavior of participants in a market that is reflective of an increase in the adoption of energy-efficient ...and is causally related to market interventions." (Eto et al., 1996). A key distinction from MT is a market effect is not necessarily lasting.

Cost-effectiveness: This is an issue that needs to be addressed differently in the re-regulated electric industry world, but even under a regulated environment, it was clear that products and practices in the market needed to have their cost-effectiveness judged on the societal test basis, so that the participants' perceived benefits above and beyond the energy savings, are credited against the cost of the measure. In addition, the cost-effectiveness analysis of the intervention requires the inclusion of the continuing market effects that continue beyond the intervention. In a world of public benefits charges, to pay for MT and other efficiency improvements, the judgment as to what to include as a benefit becomes even cloudier.

Exit Strategy: this short-hand term, which reflects the success of the intervention, is often more of a hindrance than a help to MT proponents. It is the point at which the success of the intervention is judged to be sufficient to allow the intervenors to withdraw, modify, or reduce the intervention. It is a very good way to determine if your *a priori* goals have been achieved. It has a "free-market" political correctness to it that gives MT some political strength. However, the term may set up high expectations among the uninitiated for swift success. It may set off suspicion alarms among DSM proponents, who view this as a sign of eagerness to get out of the market as soon as possible. A public benefits system, combined with the willingness to accept "modifications or reductions of effort" as valid signs of success may help bring consensus to this contentious issue.

[3] The authors appreciate the collation of some of these examples by Peters et al. (1998) in their work for the California DSM Measurement Advisory Committee (CADMAC) on the "Summary of Market Effects Studies," which is summarized in elsewhere in these proceedings (Mast et al., 1998).

the extent to which the technologies being incentivized are eventually purchased by non-participants in the program..."

Bonneville Power Administration (Keating, 1996) "a strategic effort by utilities and other entities to make a lasting change in the behavior and decisions of market actors that result in greater penetration of efficient technologies and practices in the marketplace."

Eto, Prahl, and Schlegel (1996): "... a reduction in market barriers resulting from a market intervention as evidenced by a set of market effects, that lasts after the intervention has been withdrawn, reduced, or changed."

Massachusetts Department of Public Utilities (1997): "strategic efforts to offset market failures and to induce lasting structural or behavioral changes that result in increases in the adoption or penetration of energy efficient technologies or practices."

CEC (1997): "the 'market transformation' approach reduces market barriers to the purchase of energy efficient products and services so that all customers will eventually have the knowledge and skills to purchase appropriate products and services on their own, without the need for on-going publicly-funded programs."

CPUC (1997): "The mission of market transformation is to ultimately privatize the provision of cost-effective energy efficiency services so that customers seek and obtain these services in the private, competitive market."

Northwest Energy Efficiency Alliance (1997): "Activities intended to effect permanent changes in the market for targeted, cost-effective energy efficient products and services that will result in high and lasting market penetration."

In their review of evaluation methods for energy efficiency programs, Schlegel et al. (1997) summarize the four components found in most definitions of market transformation that they reviewed as:

- "Strategic efforts by utility and other organization to intervene in the market,
- causing beneficial, lasting changes in the structure or function of the market, and/or practices,
- leading to increases in the adoption of energy efficient products, services, and/or practices, and
- with the changes in the market being *lasting* changes, meaning that the changes last beyond any revision to or discontinuation of the intervention."

Analysis

At first glance, the simplification of the debate to a few consensus concepts appears tempting. However, we believe that the range of issues and concepts reflected in the set of definitions of MT is large. In the mature state of a development of theory, the temple of taxonomy is built in stone. When we are at a stage of development of theory and iteration with experience, the theory is more of a tent, and it needs to be a "big tent." In this section, we describe and attempt to organize the breadth of opinion, regarding what is market transformation.

The wide range of opinion is, in part, due to the range of roles and perspectives -- depending on whether one is trying, as a practitioner, to define MT inductively, or one is trying as a planner to prioritize programs, or as an evaluator, to categorize them as successes or failures, or if one is trying as a policymaker to describe

preferred methods of economic/environmental policy planning. Policymakers may be the least disposed to theoretical development, but they have a strong influence on what gets accomplished. Once we acknowledge the policy goal concept of MT in our analysis, we can talk of at least four dimensions of the debate. These should capture most of the implications of the historical definitions cited above, but certainly can be expanded as practitioners consider other dimensions.

One way to think about the definition of MT is to consider a 4-dimensional "definition space" that bounds the range of concepts that, historically, have been included in the term "market transformation." Figure 1 provides a graphic depiction of the aspects of the varying perspectives described in the text below.

Increased energy efficiency vs. reduced intervention: It is critical to recognize that part of the disagreement about the meaning of MT is related to the goals of the parties involved. At one end of the axis, MT is perceived as a goal of increased development of cost-effective energy savings. By increasing the effectiveness of policy interventions, MT provides greater economic and environmental benefits. This perspective is illustrated by the definition adopted by the NW Alliance, with its emphasis on "cost-effective" energy efficiency.

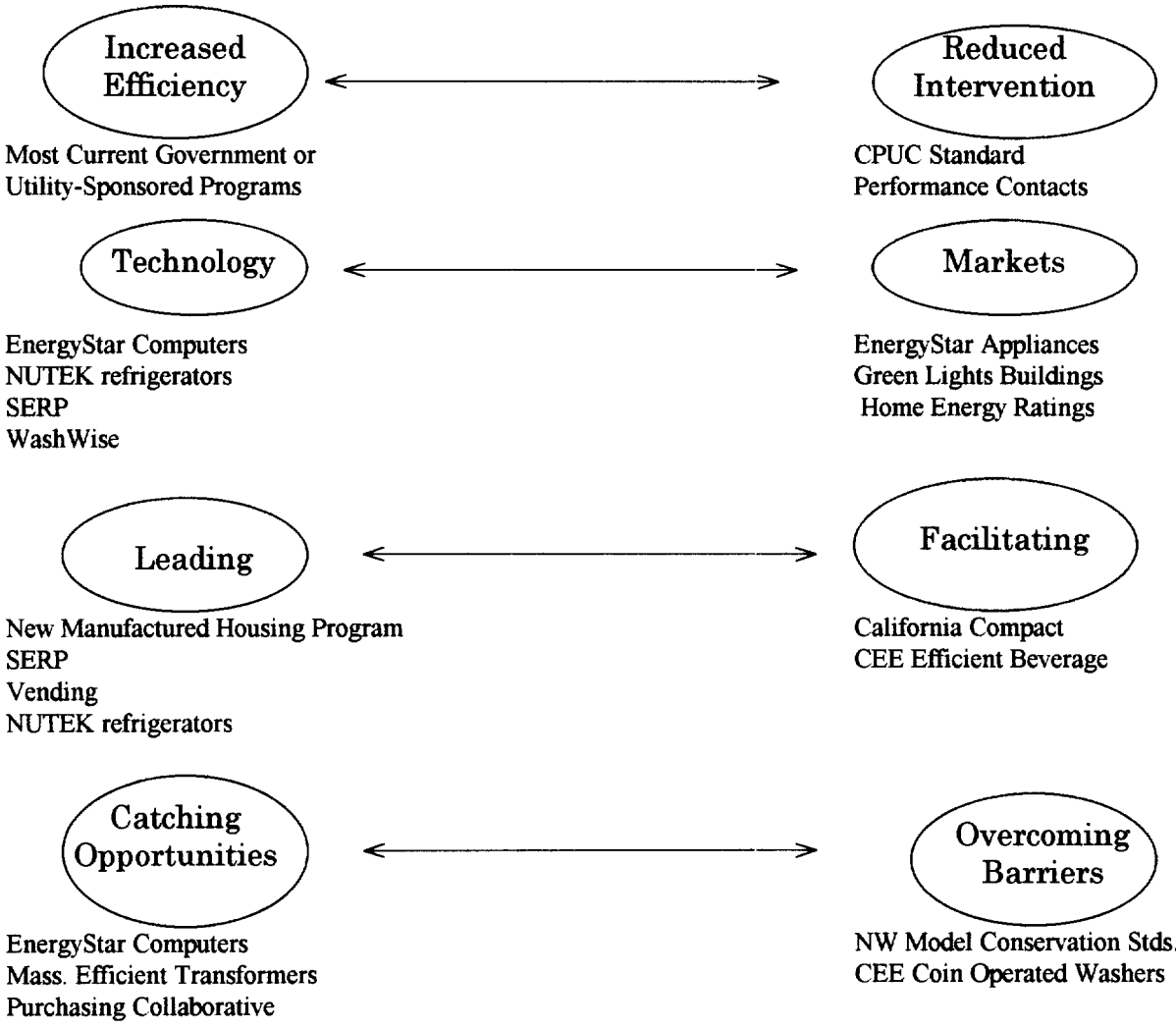
At the other end of the axis, MT is seen as a means of reducing the need for public intervention in the marketplace. By substituting self-sustaining market changes for continued intervention, MT allows for the phase-out of public goods efficiency programs. This perspective is illustrated by the definitions adopted by the CPUC and CEC, each of which has an emphasis on the replacement of public programs with private market mechanisms.

Disputes among advocates of MT who emphasize goal of energy efficiency would be muted if all discussants realized that everyone is talking about the same policy goal – changed markets, and that this can be the ultimate goal of every DSM program. To paraphrase: "Every DSM program we have ever run had an ultimate goal of changing the market. Don't put some new names on what is basically an issue of good and bad program designs." The policy goal of MT is being confused with the more specific strategic approach called the same thing.

The much more substantive difference is between those whose policy goal for MT is energy efficiency and others whose goal is to minimize utility or public purpose investments and to turn the issue of energy efficiency over to the wisdom of the market.

Technology-focus vs. market-focus: This is the oldest dimension in the field. It is an issue within the strategic school of MT. Naturally, the extremes are highlighted for clarity; the attributes actually interact in the real world. This axis illustrates a range of MT initiatives from those with a principal focus on specific technologies and services, to those with a principal focus on markets. The technology focus is illustrated by those definitions that emphasize bringing new technologies into the market (Nadel and Geller; Goldstein). Procurement competitions, bulk procurements, and research and demonstration projects are strategic preferences of the technophiles. These efforts are often accompanied by significant subsidies. The NUTEK programs, the Super Efficient Refrigerator Program, (SERP), LED exit signs, and resource efficient clothes washers (WashWise) are examples of effective interventions based on the technology-first paradigm. The "market-focused" paradigm begins by examining the motivations and values of the consumers and other market actors, and attempts to increase the use of energy efficient technologies and practices by changing the ways these actors interact. Because it builds on the existing motivations of market actors, proponents also tend to expect a self-sustaining exit strategy, and recognize that, because energy efficiency is just part of the mix, maximum energy savings may not result. The EPA's Green Lights program and the EPA/DOE retail initiative of the EnergyStar® programs are examples of programs that are aimed at this end of the axis

Figure 1. Axes of Differing Perspectives on MT



and may turn out (after evaluation) to meet criteria of MT. Building commissioning, operation and maintenance certification, and motor systems optimization are examples of potential MT initiatives that tend to be designed around the insights of a market-focused definition (Prahl; Eto et al.).

Leading vs. facilitating: Some practitioners think of the MT debate as a spectrum between an aggressive, market leading approach, and a facilitating, market influencing approach. To some this is most succinctly captured with an "incentives vs. low cost" dichotomy. Aggressive, incentives-based MT initiatives are exemplified by programs that might be considered energy savings oriented, and technology-focused. Examples of aggressive approaches include the Manufactured Housing Program (MAP) in the NW, manufacturers' buy-down for CFL's, and the efficient street-lighting program in the NW.

The other end of this dimension finds those who try to work with market actors to help them see their own potential benefits from adopting energy efficiency in their business transactions. The

implementers may be active, provide leadership, and even be quite aggressive, but they usually don't depend on incentives to get the market to move. Examples of activities exemplifying this approach are the California Compact, the Compressed Air Collaborative, the micro-electronics initiative in the NW, Energy Star Homes, and the efficient vending machine venture. Many Energy Star activities use this collaborative approach with manufacturers and retailers to change the mix of technologies in the marketplace.

Barriers vs. opportunities: Some analysts are inclined to take an economic-theory-based approach to MT and tend to view the market in terms of the existence and identification of market barriers to energy efficiency. Others take a more programmatic or business-oriented approach, looking at the opportunities that the market provides to incorporate efficiency Although this dimension could be considered a planning and measurement issue, it has become part of the debate around the definition, because some authors imply that the focus on barriers is essential to the discussion of MT (Eto et al; Massachusetts DPU). The concept of market barriers and market failure underlie the public policy debate on why utilities or other entities using public money should be intervening in the market to begin with (Northwest Power Planning Council, 1994).

For many, the identification of specific market barriers provides a logical rigor to the intervention and the design of the proposed initiative. Market barriers can serve as proximate indicators of program success, and whether they are reduced or simply sidestepped can help predict whether the market effects of the intervention will be lasting. Some of the most carefully designed MT efforts have taken the approach of examining the barriers before proceeding to designing an initiative. These include the Model Conservation Standards in the NW, commercial coin-operated laundry machines, and the resource efficient clothes washer initiative from CEE.

Nevertheless, an over-emphasis on barriers can lead to a narrow focus that is so inflexible that it misses opportunities that the market presents. It can be negative and miss synergies that are available. It is possible to increase the penetration or saturation of energy efficient technologies and practices by market intervention when the product or service wasn't facing serious barriers -- earlier and more complete penetration than the market, operating alone, would have produced. Alternatively, it is possible to identify strategically where interventions can make a difference and then measure the market effects to verify whether or not they have, without analyzing barriers initially present or barriers overcome (Reed and Hall, 1998). Examples of successful initiatives that didn't stop to analyze barriers include the Energy Star® computer program, the LED exit sign effort, and the quick incorporation of efficient dry-type transformers in the Massachusetts restructuring legislation. These and other projects did not require extensive justification, because the opportunities were obvious.

These dimensions are meant to describe the scope of the thinking that is going on around the definition of MT. Often both ends of the dichotomies are incorporated in successful MT. One example is the LED exit sign transformation for new buildings. Only a few parties formally designated it as a MT effort -- Bonneville, EPA, NYSERDA, and the Lighting Research Center (LRC). Yet, it has worked with the help of: (a) utility incentives to introduce the technology (leadership); (b) capturing the attention of manufacturers who improved the product (technophile); (c) providing the assurance of tremendous reliability and reduced maintenance costs (market focus); (d) leading to EPA/DOE joining with manufacturers and NEMA to endorse an Energy Star® exit sign standard (facilitation emphasis); (e) followed by a bulk procurement by the US Postal Service, resulting in a price under $25 (technology focus); and, (f) justifying the end of subsidies for new construction (a self-sustaining market).

Can We Achieve an Operational Definition Which is Meaningful?

The previous discussion characterized several perspectives on market transformation, some of which were at the level of policy goals, and some of which were clearly more programmatic or strategic in focus. Programs, or criteria for evaluating them, could be placed at any point along the last three axes between the poles defined above, but not many programs could satisfy the criteria of both poles of the same axis at the same time. It may turn out, after further experimentation and evaluation, that one end of some of the axes turns out to be "better" for some types of MT programs, or even more broadly. At this time we simply do not have the empirical basis for asserting the types of focus that will be best for every potential market target.. We will attempt to summarize what we believe to be the best ranking criteria in the next section. This proposal should be seen as a working hypothesis: an attempt to stimulate ideas and provide a foundation upon which more refined formulations can be based.

The broader policy axis is fundamentally different. While we acknowledge that many people can align with the policy goals of making markets energy efficient in the long run, and that some policymakers will continue to see MT as a way out of ratepayer funding for efficiency, we advocate firmly for the energy efficiency end of the spectrum. The bulk of the literature of MT, and virtually all of the practice, takes the policy goal of (economically attractive) energy efficiency as a given, and ranks programmatic options in terms of their effectiveness at saving energy and reducing costs. Making markets function better is sometimes seen as a means to an end – as the most effective way of delivering energy efficiency in a particular market or era – but never as the goal in and of itself. While economic theorists may be interested in "efficient markets," for their own sake, the concept of MT is an energy efficiency concept, not an economic-theoretical one.

Therefore, we concentrate on the operational definition of a market transformation initiative, rather than the concept of market transformation as public policy.[4] While providing a "big tent" in describing perspectives, the issues surrounding the design, selection and ranking of MT initiatives require guidelines, not prescriptions.

We think of our definitional criteria as approximating a way to judge the quality of an investment decision -- a proposed or evaluated initiative does more or less well on each of the criteria. The goal of setting criteria is to design the most effective MT initiatives that can change markets the fastest through cost-efficient leveraging – in markets where MT is an appropriate approach. Our core criteria for an effective MT initiative are: it must focus on energy efficiency; it should be strategic; it should provide leverage; it must be market based; and it must be lasting. The underlying assumption is that it necessarily is based on a coherent story (Herman et al., 1997). We discuss each of these criteria below.

Energy Efficiency: MT is regarded as a way to achieve energy efficiency in the market. It isn't a passive observation of something that occurs in a marketplace. It is an energy policy term of art, not an economics textbook expression that we are talking about. Many actors are in the market trying to obtain an outcome through influencing the behavior of market actors for their own benefit. Our motivation should be energy efficiency. This is a *sine qua non* of our view of MT. This does not imply an objective of getting the maximum savings, but energy efficiency clearly needs to be the reason for the effort. This can be lost in the desire to work with the market—programs can be proposed that support good products or services, but won't provide much energy savings for the resources invested. In addition, too much focus on the policy goal of getting out of the market could result in initiatives that simply support private enterprise without generating substantial new energy savings. "Standard offer" programs that simply

[4] There is a forthcoming LBNL report by Eto, Goldman and Nadel (LBNL 41479) that explores the policy arena extensively: "Ratepayer-Funded Energy Efficiency Programs in a Restructured Electricity Industry: Guide for Regulators and Legislators."

subsidize technology purchases that would have occurred anyway, and which constrict competition in the market, would be examples of this type of conflict.

Strategic: a project can be opportunistic and still be successful, but it would be meaningless to allow a program proponent to suggest that we should spend MT program money without a plan and then judge the result to be MT by what comes out. In order to be strategic, some understanding of the market and the technologies, and the motivations and constraints of the market actors is necessary. Whether in search of barriers or opportunities, whether the analysis is based on program decisions or economic theory, knowing how the technology or practice fits in the market is the beginning of wisdom. This can be done without creating a situation of "paralysis by analysis." Other market actors are seldom successful without a plan, and MT proponents should be just as careful with the public's money. One aspect of a strategic approach will consider the risk versus the potential benefit of the investment. Another aspect would be understanding just who your allies are likely to be and a having a plan for coordinating efforts. A strategic approach doesn't mean an immutable plan. In fact, if it fails to recognize that flexibility is needed, it misses an important market attribute. A MT initiative must expect markets to change on their own, presenting new barriers and bypassing old ones. A MT program requires "adaptive management" to encourage tactics and targets to be changed. The decision by NEEA to change its program for premium efficiency motors twice in response to new market information is an illustration of flexibility built into a strategy.

Leverage: It can be very costly to chase one kilowatt hour at a time. MT should provide the ability to leverage your resources, staff and money. At one time, MT had been defined as "working upstream" of the consumer. That captured one of the attractions of MT, but "working upstream" is only one way to get leverage. Working with specification writers and designers can multiply the impact of the contacts the program makes. Spillover effects can be designed into MT ventures. One of the NW Alliance's ventures will demonstrate an ASD technology in one storeroom of a fruit warehouse to show the owners the value of unsubsidized investments in the technology for the other controlled atmosphere rooms in the same and other facilities. The more leverage in terms of time, spillover, and structural change that a proposal uses, the more desirable it should be. Standards and codes are examples of broad leverage that might not always get the maximum energy savings possible, but have major and lasting impacts.

Market-based: The expression "market-based" means different things to different people, and risks becoming an entirely meaningless term. Indeed, any activity within a market-focused economy such as that of the United States will of necessity be market-based. Ideology can take over. A MT program that achieves 100% market share of, for example, a new window system, will be indistinguishable in its market effects from a building code that also achieves 100% market-share through a state mandate; yet clearly the latter program will be seen by most analysts as less "market-based." Thus, this criterion must be somewhat qualitative; however, we believe that broad agreement would be reached on which programs have more of this attribute than others. As general guidance, a program that is more market-based will recognize and use market forces, find allies, promote competition, and share risks. The NW Alliance has obtained almost $4 million in commitments for co-funding from industry and industry groups. This is one element of being market-based. Others include the extent to which the product or service incorporates non-energy benefits that will make it a market preference. This criterion overlaps with that of being strategic, in as much as knowledge of the market channels and motivations is essential to both. Programs ranking higher in this attribute will allow greater consumer choice and will enhance competition.

Lasting: Nothing is permanent. MT doesn't want to establish an efficiency level, which is not capable of being improved further. However, a key characteristic of the most effective market transformation programs is that the target of the MT effort will hold its place in the market when the intervention is reduced, changed, or even discontinued. Many interventions will result in incomplete transformation, where a further, modified presence in the market may enhance or help sustain the market effects after the major intervention is removed. Sometimes this can be continued marketing, and other times it is accomplished by handing off the continuing effort to other parties: an industry group, code officials, testing programs, or manufacturers. The more likely a proposed MT initiative is to result in a long-term change in the market, the more attractive it should be to a funder.

One problem with the criterion of "lastingness" is that it is difficult to measure whether an intervention is long lasting in a time frame that is meaningful to the planning and evaluation of the project. But lastingness is still a meaningful criterion because it encourages MT program designers to look for milestones for success, after which the program can be reduced, changed, or discontinued. Thus, programs that appeared prospectively as likely to achieve continuing results with reduced interventions as a result of predictable achievements would score higher than ones for which no reasonable basis existed for expecting that the program could continue without the same high level of intervention.

By using these criteria in combination, it is possible to rank projects that are proposed. Variations of this type of ranking have been used by others in the past (Nadel and Suozzo, 1998) to select the most promising technologies and practices, but our criteria go beyond picking a target to establishing how strong a candidate a proposal is as a MT venture. It is intended rank the various qualities of the proposal rather than to separate strictly the wheat from the chaff. However, the use of such criteria for rank ordering will be useful if the existing MT programs that are agreed to be "successful" generally rank high, and those judged to be less successful rank lower, and if programs with clearly limited MT potential generally fail to score well.

Conclusions

Market transformation is a theory that developed from experience. It is still evolving. As experience accumulates, we would be disappointed if additional or more discriminating criteria did not evolve. In this paper we have attempted to pin down where we believe the evolution is currently, while acknowledging a broad range of perspectives in this field. MT isn't the only approach to energy efficiency, but it is a promising and currently popular way to act in the market. It fills only a part of the energy efficiency portfolio, but in order to make the most defensible prioritization of funds for MT, we have suggested some criteria for consideration. These five criteria are: a focus on energy efficiency; strategic; leveraged; market-based; and lasting. An operational definition could be: "An initiative can be recognized as more or less likely to be a strategy-level MT program to the extent that it focuses on energy efficiency, involves a logical strategy for working in the market, including available market leverage, so that it produces potentially lasting effects."

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